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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/524,669	02/11/2005	Volker Hennige	265287US0X PCT	1522

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EXAMINER	
CREPEAU, JONATHAN	

ART UNIT	PAPER NUMBER
1795	

NOTIFICATION DATE	DELIVERY MODE
03/05/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/524,669	HENNIGE ET AL.	
	Examiner	Art Unit	
	Jonathan Crepeau	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 December 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) *13-25* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *See Continuation Sheet*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :2/11/05 4/4/05 6/20/05 5/24/06 6/4/07 4/10/08.

DETAILED ACTION

Information Disclosure Statement

1. The copending applications listed on the "Lists of Related Cases" have been considered but will not appear on the face of any resulting patent unless the corresponding publications are cited on a PTO-1449.

Election/Restrictions

2. Applicant's election with traverse of Group I, claims 1-12 in the reply filed on 12/22/08 is acknowledged. The traversal is on the ground(s) that the Examiner has provided no indication that the content of the claims interpreted in light of the description was considered. This is not found persuasive because Applicant does not specifically point out how the description (specification) would materially affect the reasons for the Examiner's determination of lack of unity of invention. Applicant further cites 37 CFR 1.475(b) to support the argument that the process claims must be examined along with the product. However, it is noted the inventions lack a special technical feature as specified in 37 CFR 1.475(a), and this is sufficient to support a determination of lack of unity of invention. The reasons for holding that claim 1 lacks inventive step, and the inventions therefore lack unity of invention, are explained below.

The requirement is still deemed proper and is therefore made FINAL. However, it is noted that rejoinder will be considered if the subject matter of claim 1 is determined to be allowable.

Claim Objections

3. Claim 11 is objected to because of the following informalities: in line 3, "100 m" should be "100 mm". Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Penth et al (U.S. Patent 6,309,545) in view of Ashida et al (U.S. Patent 6,200,706).

Penth et al. is directed to a composite material that may be used as a battery separator (see col. 9, line 50). The separator may comprise a felt (i.e., nonwoven fibrous fabric) made of a polymer material (see col. 3, lines 50 and 55), which is a "sheetlike flexible substrate having a multiplicity of openings" as recited in claim 1. The separator further comprises an inorganic particulate coating comprising an oxide adhered via a metal oxide layer such as silica or zirconia (see col. 5, line 49; col. 6, line 4). The particles may have a size in the range of 1-10,000 nm (see col. 6, line 23) and may comprise an oxide of Al, Zr, or Si. In Example 1.6, a specific formulation of particulate zirconia (50 nm size) is added to a sol of zirconium tetraisopropylate, which would result in the particulate zirconia adhered to the substrate via a layer of zirconia. The separator has a thickness of 5-1000 microns (see col. 6, line 60).

The reference does not expressly teach that the basis weight of the separator/nonwoven is less than 50 g/m^2, as recited in claim 1, or less than 20 g/m^2, as recited in claims 2 and 7.

The Ashida et al. reference is directed to a nonwoven fabric for a battery separator. In column 9, line 31, it is disclosed that the basis weight of the separator is 5-100 g/m^2, preferably 10-50 g/m^2.

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be motivated to manufacture the separator of Penth et al. with a basis weight of 10-50 g/m^2, since this range is disclosed by Ashida et al. as being preferred. Further, Ashida et al. identify the basis weight as a result effective variable that may be used to affect void content (porosity) of the separator (col. 13, lines 30-34). It has been held that the discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art. *In re Boesch*, 205 USPQ 215 (CCPA 1980).

Regarding claim 3, the disclosure of "plastic" in Penth et al. would render obvious at least the claimed species of polyester and polyolefin, which would be readily envisioned by a skilled artisan. Further, Ashida et al. disclose polyolefin fibers at col. 7, line 20.

Regarding claim 4, which recites that the fibers are from 0.1-10 microns in diameter, Ashida et al. teach that the fibers have a diameter of 1 micron or less to prevent formation of pin holes (col. 7, lines 36-42). Accordingly, the artisan would be motivated to employ this fiber size in the nonwoven separator of Penth et al.

Regarding claim 5, which recites that the flexible substrate has a porosity of 50-97% and claim 9, which recites that the separator has a porosity of 30-80%, these ranges are also rendered obvious by Penth et al. The reference contains passages discussing particle sizes capable of permeating through the separator (col. 3, line 35), pore size/pore distribution (col. 3, line 8), and a carrier having materials of different porosity (col. 8, line 35). Accordingly, it would be obvious to optimize the porosity of the separator of Penth et al. to affect the pore size, pore distribution, and separator permeation characteristics, thereby rendering the claimed ranges obvious.

Regarding claim 6, the claimed thickness range of less than 30 microns is obvious in light of the teaching of Penth et al. of a thickness of 5-1000 microns.

Regarding claims 10-12, which recite ranges of breaking strength and bendable radius, it is submitted that the separator of Penth et al. as modified by Ashida et al. would possess these properties. In the alternative, it would be obvious to manufacture a separator with a high breaking strength and a high flexibility as measured by a bendable radius characteristic.

Double Patenting

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re*

Goodman, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. Claims 1-11 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-12 and 25 of copending Application No. 10/524143 in view of Penth et al. The '143 application claims do not recite the adhering layer of silica or zirconia, as recited in claim 1, or the particle size of the oxide particles as also recited in claim 1.

As noted above, Penth et al. teach a separator comprising a substrate coated with a silicon or zirconium oxide derived from a sol and a particulate metal oxide having a nanoscale particle size.

It would have been obvious to use the particle size and oxide attaching layer of Penth et al. in the separator of the '143 claims. In column 2, line 8 and column 3, line 6, Penth et al. teach that the composite can be produced simply and economically and allows the pore size and/or pore distribution of the composite to be easily adjusted for special applications. Accordingly, the instant claims are obvious variants of the '143 application claims.

This is a provisional obviousness-type double patenting rejection.

8. Claims 1-11 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 3-10, 32-38, 40, and 46-52 of copending Application No. 10/501713 and claims 1-12 and 31-36 of copending Application No. 10/504144, in view of Penth et al. and Ashida et al.

The '713 and '144 application claims recite a metal oxide coating, but do not recite the adhering layer of silica or zirconia in combination with nanoscale particles as recited in claim 1, or the separator basis weight as also recited in claim 1.

As noted above, Penth et al. teach a separator comprising a substrate coated with a silicon or zirconium oxide derived from a sol and a particulate metal oxide having a nanoscale particle size.

It would have been obvious to use the particle size and oxide attaching layer of Penth et al. in the separators of the '713 and '144 claims. In column 2, line 8 and column 3, line 6, Penth et al. teach that the composite can be produced simply and economically and allows the pore size and/or pore distribution of the composite to be easily adjusted for special applications.

As also noted above, Ashida et al. teach a separator basis weight of preferably 10-50 g/m^2. It would have been obvious to employ the basis weight of Ashida et al. in the separators defined by the '713 and '144 application claims for the reasons stated above. Accordingly, the instant claims are obvious variants of the '713 and '144 application claims.

This is a provisional obviousness-type double patenting rejection.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (571) 272-1299. The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan, can be reached at (571) 272-1292. The phone number for the organization where this application or proceeding is assigned is (571) 272-1700. Documents may be faxed to the central fax server at (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Jonathan Crepeau/
Primary Examiner, Art Unit 1795
March 3, 2009